

SiC Avalanche Photodiodes and Arrays, Phase II

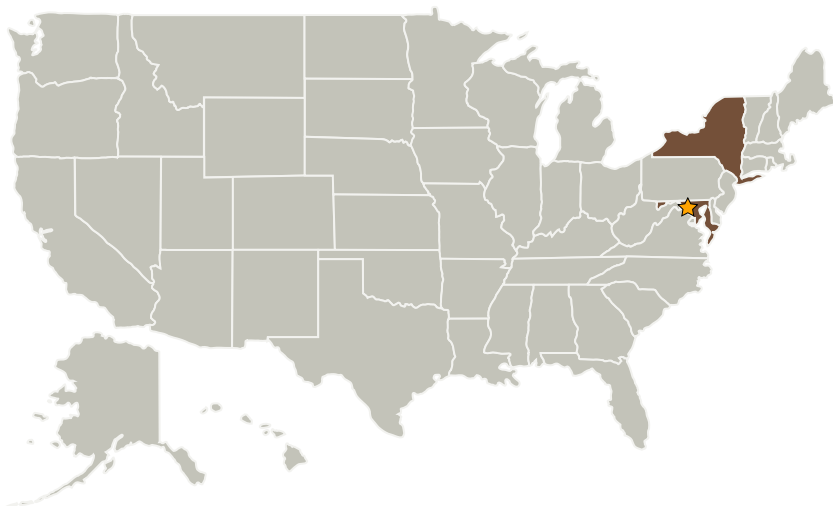
Completed Technology Project (2009 - 2011)



Project Introduction

In this Phase 2 SBIR program submitted to National Aeronautics and Space Administration (NASA) in response to Topic S1.05 (Detector Technologies for UV, X-Ray, Gamma-Ray and Cosmic-Ray Instruments), Aymont Technology, Inc. (Aymont) and GE Global Research will enable high-sensitivity ultraviolet imaging. We will build upon our Phase 1 result showing working SiC UV avalanche photodiodes with high quantum efficiency as well as GE's product expertise in SiC photodiodes. Our team will demonstrate 16 x 16 arrays of SiC photodiodes including electronics for visible-blind high-sensitivity ultraviolet (UV) detection. We will demonstrate imaging using these arrays at UV wavelengths. In order to enable large scale arrays needed for future NASA missions, we will also demonstrate a 3 x 3 array of SiC photodiodes and avalanche photodiodes without front side contacts. In Phase 3, this array will be scaled to VGA dimensions (640 x 480) and utilized by NASA and others as the best-performing choice for UV imaging in space, satellite, security, and other applications. Additionally, APD arrays will be enabled. These will give the capability of imaging where each pixel has the sensitivity of a PMT.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Aymont Technology, Inc.	Supporting Organization	Industry	Ballston Spa, New York

Primary U.S. Work Locations	
Maryland	New York

Project Transitions

**March 2009:** Project Start**March 2011:** Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.1 Detectors and Focal Planes